

## CLAIMS

What is claimed is:

1. A method of reducing nitrogen oxides from an air stream, comprising:  
introducing cyanide into the air stream; and  
5 reacting the cyanide with the nitrogen oxides.
2. The method of claim 1, wherein the reacting step occurs at a temperature between  
1200° F and 1640° F.
3. The method of claim 2, wherein the cyanide is contained in a waste material.
4. The method of claim 3, wherein the waste material comprises ammonia.
- 10 5. The method of claim 3, wherein the nitrogen oxides are produced by a cement  
manufacturing process.
6. The method of claim 5, further comprising the step of producing the air stream at  
least in part by burning a raw material mixture in a kiln.
7. The method of claim 6, further comprising using mineral residue from the waste  
15 material as part of the cement manufacturing process.
8. A method of reducing nitrogen oxides released by a cement manufacturing process,  
comprising:  
burning a raw material mixture in a kiln thereby producing a gas comprising a  
nitrogen oxide compound;  
20 introducing a cyanide containing waste into the cement manufacturing process; and  
reacting the cyanide containing waste with the gas.
9. The method of claim 8, wherein the cement manufacturing process comprises a pre-  
heating step, and the cyanide containing waste is introduced during the pre-heating  
step.
- 25 10. The method of claim 9, wherein the step of reacting occurs during the pre-heating  
step.
11. The method of claim 10, wherein the step of reacting further occurs at a temperature  
between 1200° F and 1640° F.

12. The method of claim 8, further comprising a step of deriving the cyanide containing waste from aluminum production.

13. The method of claim 12, wherein the cyanide containing waste further comprises ammonia.

5 14. The method of claim 8, further comprising the step of deriving the cyanide from a mining process.

15. The method of claim 8, wherein the nitrogen oxide compound is nitrogen dioxide.

16. The method of claim 8, further comprising a step of causing a reduction in the amount of the nitrogen oxide compound released from the cement manufacturing process.

10 17. A cement manufacturing system, comprising:  
a kiln that burns raw materials thereby producing a gas comprising a nitrogen oxide compound;  
a pre-heater tower coupled to the kiln; and  
15 a cyanide containing waste that reacts with the gas, in the pre-heater tower, to reduce the nitrogen oxide compound.

18. The system of claim 17, wherein the cyanide containing waste is derived from mining waste.

19. The system of claim 18, further comprising a waste input port to the pre-heater tower for introduction of the cyanide containing waste into the pre-heater tower.

20 20. The system of claim 19, wherein a temperature in the pre-heater tower at a point where the waste is introduced is between 1200° F and 1700° F.

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